local time, and the duration is about 1m. 18s. The central eclipse begins in longitude 116°·6 W., latitude 18° N.; it takes place with the sun on the meridian in 44°·8 W. and 44°·9 N., and passes off the earth in 31°·8 E. and 25°·4 N. At Greenwich the magnitude of this eclipse will be less than 0·7.

WINNECKE'S COMET.—In NATURE, vol. xi. p. 349, it was stated that the identity of this comet with that found by Pons at Marseilles, 1808, February 6, A.M., suspected by Prof. Oppölzer, is open to doubt. There is contradiction in the only two accounts of this comet which we possess. In the first one, which will be found in Zach's *Monat. Corresp.* xviii., it is described as "very small;" the discovery was not made known to the astronomical public, partly because no regular observations were procured, and the strong moonlight prevented its being seen after the morning of Feb. 9. Schumacher having inquired of Pons whether amongst his papers some more definite account of this comet were to be found, received from him, through Inghirami, a communication which was printed (apparently long after its receipt) in *Astron. Nach.* vii., c. 113. Pons says the comet was one of those of which it was not possible to calculate the elements, because there were only procured some very doubtful positions by reference to nebulæ in the vicinity. He adds: "Elle était très-faible et difficile à voir. Sa nébulosité était ronde; elle s'étendait à peu près un dégré et on y soupçonnait par intervalle un très-faible noyau en deux parties. Son mouvement était assez rapid vers le sud. . . ." He then gives a sketch showing the configuration of the comet and two nebulæ, in a telescope with a field of nearly 3°. The nebulæ he describes as "sur le ventre d'Ophiuchus un peu au dessous de l'Equateur;" and Oppölzer identifies them with Nos. 10 and 12 of Messier's Catalogue. Hence we have an approximate place of the comet for Feb. 9 (at 5 A.M. at Marseilles), and Pons tells us it was moving pretty rapidly towards the south. If we now adopt Clausen's elements of Winnecke's Comet for 1819 (obtained by connecting the observations of that year with those of 1858, by calculation of the perturbations), and assume the date of perihelion passage in 1808 with Oppölzer on April 12·0, we have the following geocentric places:—

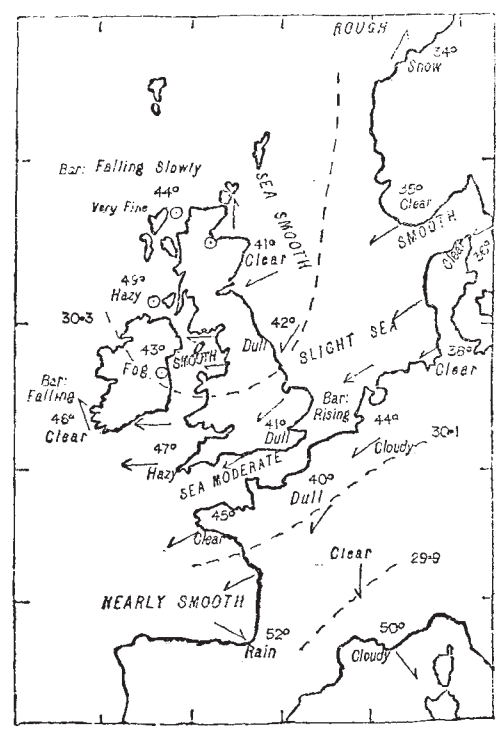
	D. H.		R.A. ° ′	N.P.D. °	Distance from Earth.
1808 Feb.	5.16	Marseilles	237 56	97 0	1·044
	6.17	,,	239 10	97 10	1·031
	8·17	,,	241 39	97 31	1·007

These positions do not indicate what could be termed a pretty rapid motion towards the south, and at a distance exceeding the mean distance of the earth from the sun it is very unlikely that a comet would present an apparent diameter approaching one degree. So far as can be judged from Pons's communication to Schumacher, we may rather infer that the object he observed was very near to the earth. Clausen's elements of Winnecke's Comet in 1819 show that it was then moving in an ellipse with a period of 2031·8 days: two such periods reckoned backward from the date of perihelion passage in 1819 would bring us to 1808, June 2·5, instead of April 12. It does not, therefore, appear that sufficient grounds exist for supposing the comet of February 1808 to have been identical with the one which now bears Prof. Winnecke's name. We may take this opportunity of stating that according to Clausen's calculation of the perturbations, Winnecke's Comet was in perihelion on the following dates between the appearances in 1819 and 1858, passing unobserved in each year: 1825, Feb. 5·5, G.M.T.; 1830, Aug. 21·4; 1836, March 3·4; 1841, Sept. 13·9; 1847, March 29·0; and 1852, Oct. 11·7.

THE STAR B. A. C. 2695.—This sixth-magnitude star of the British Association Catalogue was missed in August last by Mr. Tebbutt, of Windsor, N.S.W., being then invisible in a telescope of 4½ inches aperture. It is No. 1871 of the Paramatta Catalogue, where the place depends upon a single complete observation, the magnitude attributed to the star being 6. It is also No. 966 of the catalogue in the fifth volume of Taylor's Madras Observations, the position depending upon two observations in each element in 1838 or 1839, but the recorded magnitude is 10. So great a difference in the estimated brightness clearly points to variability, which is confirmed by Mr. Tebbutt's recent notice. The position for the beginning of 1875 is in R.A., 7h. 57m. 30s., N.P.D. 150° 9′·7; five minutes distant from this star, on an angle of 180°, is the sixth-magnitude B.A.C. 2694, which Mr. Tebbutt found "decidedly red." It may be remarked that the *fifth* volume of Taylor's Madras Observations, to which reference is made above, is by far the most valuable of his series to the astronomer in the southern hemisphere; but it is not, we believe, now easily procured.

THE "TIMES" WEATHER CHART

MANY of our readers will have noticed the unusual appearance of illustrations in the *Times* in the shape of the small charts which have been appended to the Daily Weather Reports since the 1st inst. This measure has been the long-postponed carrying out of the line of action indicated by the Meteorological Committee in their Report for last year, and the chart in its present form differs but little from that printed as a specimen in that Report. We subjoin the chart for the 13th inst., 8 A.M., published in yesterday's *Times*.



The dotted lines indicate the gradations of barometrical pressure, the figures at the end showing the height, with the words "Rising," "Falling," &c., as required. The temperature at the principal stations is marked by figures, the state of the sea and sky by words. The direction and force of the wind are shown by arrows, barbed and feathered according to its force. ⊙ denotes calm.

The method of preparation of the chart seems simple enough at present, but it has been the fruit of much thought, as the problem of producing, in the space of an hour, a stereotype fit for use in a Walter machine has not been solved without many and troublesome experiments.

In the first place, a material had to be provided which would admit of being engraved rapidly without burr or chipping, and would, without further preparation, serve as a mould for type metal. Secondly, drill pantagraphs had to be adapted to engrave the lines, and to be furnished with a gauge so as to vary their depth at pleasure.

The actual process is as follows :—The outline of the land is kept standing, and the composition is run in a mould bearing this outline on one face. The block, which is now an outline chart of the British Islands, is then placed under the pantagraph drill, which reduces the original drawing, furnished from the Meteorological Office, to one-fourth. The barograms and wind-arrows are put on direct from the drawing, the figures and words by means of templates, in order to ensure uniformity in the type.

The instant the block is engraved it is ready to be stereotyped, and then it is a simple matter to adapt it in the usual manner to the cylinder of the machine.

The initiative in this new method of weather illustration is due to Mr. Francis Galton, and the practical details have been carried out by Messrs. Shanks and Johnson, of the Patent Type Founding Company.

It is hardly necessary to allude to the value of such charts as these as a means of leading the public to gain some idea of the laws which govern our weather changes. As soon as they appear in our afternoon papers, we may hope for a more intelligent comprehension of the difficulties which beset any attempt to foretell the weather of these islands for the space of even twenty-four hours.

We may safely say that with these charts we have not seen the end of weather illustration, which was set on foot more than four years ago by Sir W. Mitchell in the *Shipping Gazette*, and has been continued daily; but whatever improvements may hereafter be introduced in the process, it must be remembered that the credit of breaking the egg is due to the gentleman we have named.

THE ECLIPSE EXPEDITION

THE local arrangements for the Eclipse parties, to which we referred last week, have, we now know, been altered in the cases both of the Bay of Bengal and Siam parties.

With regard to the former, letters received from Galle, written shortly before the sailing of the *Enterprise* (which had arrived at that port from Calcutta with Capt. Waterhouse, Profs. Tacchini and Pedler, and three photographic assistants on board), state that it had been determined to give up Mergui, first because the accommodation there was doubtful, and secondly, because, in the opinion of those best informed, a cloudless sky at Camorta was almost a certainty. Hence there will be two strong parties on Camorta itself as widely separated as possible; and here, it will be remembered, the totality is longer than at any other station, being no less than 4m. 27s. at Kaikul.

The Indian Government had been careful to prepare huts for observatories on this island before even the *Enterprise* had left Calcutta; and as certain parts of it are known to be malarious, all the observers will sleep on board the steamer.

With regard to the Siam party, a Reuter's telegram, dated Singapore, April 8, shows that this party, instead of going direct to Chulai Point, has gone to Bangkok; and it would appear from the telegram that the observatories were being erected at some spot nearer Bangkok than the proposed station.

NOTES

IT is with the greatest satisfaction we record that on Tuesday Mr. James Dewar, Demonstrator of Chemistry in the University of Edinburgh, was elected to the Cambridge Jacksonian Professorship; all the other candidates having withdrawn. As our readers know, Mr. Dewar has already done excellent work, and is so widely known as a gifted investigator as well as a first-rate teacher, that his presence at Cambridge will be a great gain, not only to that University, but to English Science.

THE *Alert* and *Discovery*, the two ships destined for the Arctic Expedition, are to be commissioned to-day. In addition to the naturalists specially appointed, Captain Markham and several of the lieutenants and sub-lieutenants have been undergoing special instruction in the instruments they will have to use—astronomical instruments, pendulums, magnetometers, and spectroscopes.

AT Monday's sitting of the French Academy of Sciences, a letter was read from M. Puiseux, giving a *résumé* of his calculation for the solar parallax, founded on the recent Transit observations. M. Puiseux has made a comparison between the St. Paul Transit observations by Mouchez, and those of Pekin by Fleuriais. The exact amount of the parallax is 8·879″. Both observers had 6-inch refractors. The comparison of the results obtained by Fleuriais and another observer at St. Paul with a 4-inch refractor gives 8·84″. M. Puiseux, in computing the sources of error, states in his letter that the error cannot be more than $\frac{1}{100}$ of a second, by supposing the error to be two or three seconds of time for the moment of transit. M. Puiseux spoke briefly in support of the opinion expressed in his letter.

THE following from the *Kölnische Zeitung* of March 25, in reference to the recently invented "hardened glass," will be interesting :—According to the reports of Pliny, Petronius, and Dion Cassius, a man is said to have invented the making of flexible and malleable glass in the time of the Emperor Tiberius. The happy inventor—some call him a glass-maker, others an architect—brought to the Emperor a vase made from the new glass, with the hope of a rich reward. The Emperor, fearing that the new material might cause a decrease in the value of gold and silver, threw the vase to the ground in a passion. The vase, however, did not break, but was only bent like metal, and the inventor at once repaired the damage done with a little hammer; whereupon the Emperor had the poor fellow killed on the spot, so that he should not tell his dangerous secret to anyone. For years people have lost themselves in conjectures of what material this malleable glass might have been; some thought it was aluminium, others that it was melted chloride of silver; none, however, were certain. From various quarters the invention is now announced of a new glass which resists blows and the action of fire. Last autumn a company was formed at Bourg, in France, with a capital of 1,200,000 francs, for the working of an invention in this line, made by a M. de la Bastie. The German Glass-makers' Union communicated with this company with a view to purchase the invention, but this remained without further consequences, as the demands of the company were exorbitant. In the meantime it had been found that the elasticity was given to the glass by dipping the same, while it is heated to a half liquid state, into a hermetically closed bath of oil or fat, substances therefore which melt far below the boiling-point of water. In Silesia, where repeated experiments have tested the qualities of the De la Bastie glass, another new glass was invented a few days ago, by Herren Lubisch and Riederer, in Count Solm's glass-works, Andreashütte, at Klitschdorf, near Bunzlau. This glass, which the inventors call "metal glass," is so hard, that when a pane lies on the ground and a leaden ball of forty grammes weight falls upon it from an elevation of twelve feet, it receives not the slightest impression; nor is it in the least affected when dipped whilst red-hot into cold water. Window panes, lamp cylinders, and other articles of domestic use made from this metal glass, can therefore almost be denoted as unbreakable.